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P R E F A C E.

AS a just and honourable mark of attention to James Barry, Esq. who planned and completed those excellent and extensive Paintings which decorate the Great Room of the Society, it was voted by them in April last, “That his portrait should be prefixed as a frontispiece to the Twenty-second Volume of their Transactions, to be engraved in the line manner, and by such artist as he might recommend;”—“That Mr. Barry should be applied to, to know whether he would choose that the engraving should be made from his portrait in the Society’s possession, or whether a new one should be taken of him for that purpose, or from a model.” In consequence of these resolutions, Mr. Barry attended a Committee of the Society appointed for the purpose, and, on his opinion being requested, he stated, “That having in his possession the original painting from which his portrait exhibited in

“ the character of Timanthes, in the painting
“ of the Victors at Olympia, in the Great
“ Room, was made, he wished the engraving of
“ his portrait to be made therefrom, because
“ it would mark his age and the æra of the
“ painting, and express the character and energy
“ of the artist at the time the performance
“ was undertaken.” The Society, in compli-
ance with Mr. Barry’s intimation, agreed there-
to ; and, at his request, the present engraving
has been executed by Mr. Heath, under Mr.
Barry’s direction, and an inscription added, sug-
gested by himself.

The engraving represents Mr. Barry in the
character of Timanthes (an excellent painter,
recorded by Pliny), sitting on the base of the
statue of Hercules, holding in his hand the
famous picture of the Cyclops and Satyrs. What
we are informed, by the ancients, of the force
and expression of the paintings of Timanthes,
perfectly accords with the spirited performances
of Mr. Barry. The foot of Hercules treading
upon the serpent, strongly marks that energy
of mind with which Mr. Barry boldly crushes
every attempt of malevolence exerted against
him, and braves intrepidly the frowns of for-
tune,

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The limits of our Preface will not allow us to pursue the spirit and feeling of this great artist ; a reference to his works will appreciate his merits better than our words.

In examining the articles which form the subject of the present Volume, it will be found that additional Premiums have been offered in different classes ; viz. in the Polite Arts, class 32, *for Designs and Engravings executed by the same artist*, with the intent that the engraving may be executed with the spirit which actuated the original designer ; in Mechanics, class 161, *for an improved Walking Crane to facilitate the loading or unloading of goods* ; class 163, *for a Substitute for Elm Pipes now used for conveying water*, in order to prevent the great consumption of wood employed for this purpose ; class 163, *for a more effectual method of providing supplies of water in cases of fires*, owing to the mischief which frequently occurs from a want of water at their commencement ; class 169, *for improving Turnpike and other Roads*, by a judicious application of natural or artificial compositions for that purpose ; class 174, *for raising the Bodies of Persons who have sunk under water*, an object which has been strongly recommended by the Humane

Society, and which was readily adopted to further the views of that laudable institution, the means at present used being frequently insufficient for the purpose. Modifications have also been made in other of the Premiums offered, in order to make them more competent for the end designed, as the Society are ever desirous to encourage useful objects, or adopt alterations more conducive to their effect.

In the compilation of the present Volume, the Public will observe, that the Society have been anxious to give useful information, rather than an extent of paper or words, and that with this view the List of Premiums, and various other parts of the Volume, are printed with a smaller type, the letters set closer together, and useless certificates abridged.

To encourage Artists in different lines, some engravings are furnished from wood, and others from copper; and the Society have endeavoured to explain, by the letter-press and engravings, every improvement, so as to render it intelligible to any person who is interested in the subject.

Under the head of *Agriculture*, it will be found that John Christian Curwen, Esq. has set a meritorious example to the Public, by his
judicious

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judicious and extensive plantations, by very useful remarks on the subject of draining, to prevent the world being misled by popular opinions, and by the introduction of a machine easily worked, which answers the double purpose of preparing food for cattle from potatoes, and of washing family linen, with less damage and more facility than other machines which have heretofore been employed for that purpose.

The active duty of a magistrate, in which Mr. Borron is engaged in a populous county, has not prevented his attention to other useful objects; his Paper on Plantations of Osiers contains concise but judicious information on their cultivation to advantage.

Mr. Plowman's Sheepfold bids fair to be a valuable acquisition to the public, being much more easily moveable than those in common use, and requires less frequently to be repaired; it also effectually secures both sheep and hogs from depredations.

In Mr. Hutton's plantations of Forest Trees, amongst other useful observations, *one* cannot be too much enforced; viz. that in exposed situations it is advisable to plant with considerably smaller trees, and at narrower intervals,

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than in places screened from the winds. Many plantations have been destroyed for want of attention to this necessary point.

The plain and simple narrative of William Pearce, speaks with greater energy to the heart, than the most studied and eloquent oration ; it is not a repetition of thoughts and opinions, but a clear detail of well-authenticated facts ; it tacitly reflects upon those persons who lead a life of indolence, by contrasting it with the great powers implanted in man by the all-wise Creator, and the general advantage arising to individuals and the public by the proper use of such powers. The Society have brought this man from obscurity to public view, as an example of what can be done under material personal disadvantages ; and it would afford an interesting employment for the mind, to calculate in how short a period the waste lands of this united empire might acquire a complete state of culture, if men equally capable would be equally industrious.

The construction of Mr. Waistell's Field Gate unites strength, elegance, and lightness ; it does not require so much timber as the common gates, and shorter wood will answer to make it ; it reflects great credit upon Mr.

Waistell

Waistell for his minute and clear detail upon the subject, and for having pointed out the means of saving an immense quantity of valuable timber annually employed for this purpose.

Although the experiments made by Mr. Watson on the comparative Culture of Turnips drilled and broadcast, were not carried on upon the extensive scale required by the Society in the list of premiums offered ; yet this communication will be found to contain many important observations ; and the method of sowing the turnip-seed in drills, and well covering the manure in the manner he has clearly explained, demands particular attention.

Mr. Shirreff's method of Housing Turnips, contains a full account of the mode he has successfully practised to preserve them during the winter months : the principle is not perfectly new ; but we do not recollect any publication where it is related with such accuracy, or the advantages of the subsequent crops so well explained.

The preservation of that excellent root, the Potatoc, for a length of time in a state fit for vegetation, is certainly a desirable object ; the information furnished by Mr. I. De Lancy, towards the attainment thereof, indicates that it
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may be accomplished, and, it is hoped, will conduce to prevent the great waste of this vegetable, too frequently made for want of care and attention.

Under the article *Chemistry*, the invention of a Madder Lake, or a red precipitate, from madder, by Sir H. Englefield, Bart. offers, agreeably to the suffrages of many artists of great repute, an estimable and permanent colour, whether mixed with oil or water. Those persons who have noticed the faded tints in the works of that great artist, Sir Joshua Reynolds, will lament that this Madder Lake was not known at an earlier period.

The account of a discovery of a Mine of Manganese, in Scotland, for which the public are indebted to Dr. Dyce, is accompanied with some excellent observations by him upon the subject, and an ingenious process of separating the pure from the base metals, by means of Manganese. . It may be necessary to add, that immense quantities of Manganese are employed in the preparation of the oxygenated muriatic acid, for the purpose of bleaching linen and cotton.

Mr. Matthew Gregson, of Liverpool, has been indefatigable in attempting to alleviate pecuniary

euniary losses occasioned by fire, for which purpose he has applied the burnt coal or residuum, after fires, of sugar, grain, and other articles, to various uses, such as paints, glutens, or varnishes, with great success, and with a disinterested spirit, which does him great honour. An impression in the Volume, from an engraving on wood, cut at his own expense, and printed with black produced from burnt corn, will show that this article will form a useful printing ink.

The present scarcity of oak bark, and the too frequent mischief arising to oak timber, from its destruction for the bark, induced the Society, a few years past, to offer a premium for a substitute to answer the same purpose, in tanning leather. The communication of Dr. Howison, and the Preparations he has made from Foreign Barks, to answer equally well in tanning, have opened a valuable source of emolument from our foreign colonies. To the same gentleman the public are indebted for his discovery of a Process for printing a permanent topical Black on Cotton, without a mixture of iron in the composition.

Mr. Machlachlan, of Calcutta, has, by his communication of two Processes for producing the beautiful and permanent Red Colours, dyed
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on the coast of Coromandel, afforded hints for improving our manufactures, and has shown that large quantities of Talc may be procured from India at a moderate expense ; an article which we know may be used with great profit and advantage in England.

Under the head of *Polite Arts*, an ingenious mode will be found, communicated by Mr. Churchman, of improving the Engravings of Maps or Plans, pointing out, on a simple inspection, the altitudes of mountains, or depths of waters, and the particular parts where the rises or falls are most steep, or most easy to be passed.

The rewards lately bestowed to young persons in the class of Polite Arts, are particularly enumerated at page 424 of the present Volume, we shall therefore only remark, that to generous and feeling minds, words would add feeble testimonies of the gratification they would experience by attending the annual distribution of the premiums of the Society, of viewing the merits of the young candidates of both sexes, and observing the smiles of pleasure which animate the countenances of their friends, on witnessing the rewards conferred on rising genius.

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Under the class of *Manufactures* will be found accounts of two improved Looms for weaving similar articles; the one a Swivel Loom, by Mr. James Birch; the other an Engine Loom, by Mr. Thomas Pickard. It is impossible to describe, verbally, the particular constructions of either of them; the Society have therefore preserved complete models of each in their repository, and, on proper applications, will refer such persons as they approve, to see the original looms actually at work.

The class of *Mechanicks* contains a great variety of information in different branches of that department.

The Dam executed by the Rev. Daniel Pape, points out a means, by a speedy and well-concerted plan, and at an easy expense, not only to turn the channel of a river into a new course, but, in cases of breaches in sea-banks, by an early application of articles easily procured, to prevent the dangers which frequently happen from delay.

Captain Brodie, of the Royal Navy, has shown an active and intelligent mind in pointing out a mode by which Light-Houses may be constructed firmly on sunken rocks at present dangerous to navigators, and invented a plan by which

which many of our harbours may be rendered much more secure. He has also suggested several other hints, useful in naval concerns.

The baneful effects which the workmen experience who are employed in grinding Painters Colours, have engaged the attention of many celebrated physicians ; and any mean that would tend to lessen the evil, has been considered as a desideratum. A trial for a length of time, by Mr. Rawlinson, of his mill for grinding painters colours, and respectable references to the Society, of its merits, evince that it will contribute to prevent the mischief.

The Society regard, with peculiar satisfaction, every invention which gives a facility to our Naval exertions; and we have no doubt that the method proposed by Mr. Seppings, of obviating the necessity of lifting Ships, and which has been lately successfully introduced into most of his Majesty's dock-yards, will prove also very serviceable in the private dock-yards of the united empire.

From the general use of Fire-arms, and the accidents which frequently occur from faults in their construction, the Society has been induced to reward Mr. Dodd for a Lock of his invention, which not only possesses the strength and
simplicity

simplicity of those commonly known, but is infinitely more secure upon the half-cock.

Workmen employed in the Shoe-making branch, have ever been subject to very painful internal diseases, from being obliged, in the common way, to do their whole work in a bent posture : an invention by Mr. Thomas Holden, which enables the shoemaker to execute a great part of the work in a standing position, has obviated the inconveniencies complained of, and restored several invalids in that business to perfect health.

The accuracy of Time-keepers has long been regarded as a very necessary object to navigators, by enabling them to calculate the ship's way with greater accuracy, and to avoid the dangers which occur in a voyage. The simplicity and advantage of Mr. William Hardy's invention of banking the balance of a Time-keeper, will appear by inspection.

Probably no business has contributed so much to the general advantage of the extensive manufactures of this country, as that of Watch-making, by furnishing hints which have been applied to use in our cotton-factories, steam-engines, &c. The make and sale of watches alone is carried to an extent which will
scarcely

scarcely admit of calculation ; and every improvement in their construction assists greatly in promoting the demand for exportation. Mr. Elliot's improved Repeating Watch, whether considered as an article for home use or for exportation, will be found to possess great merit, and save a considerable annual sum to the purchaser.

Repeated accidents have occurred to the boilers of steam-engines, owing to the safety-valves being frequently improperly constructed, and from employing two in the same boiler. The improved Double Valve, invented by the Chevalier Edelcrantz, appears at once to be simple and effectual in its use.

Mr. Walby's Forge-Hammer, worked by the muscular power of the hands and feet, assisted by the weight of the body, shows a very ingenious and powerful mode of human exertion ; its action is quick, accurate, and capable of any modification ; it bids fair to be a very valuable instrument to those workers in iron, who have not money sufficient to purchase, or ample employment for a steam-engine ; and it may be worked by one, two, three, or four men, as the nature of the work may require. From its
quick

quick dispatch, the metal it works will not have occasion to be so often heated, and therefore preserves a better temper. Such persons as will examine it at Mr. Walby's house, when actually at work, will be highly gratified by the inspection.

Under the class of Colonies and Trade, it will give great pleasure to the well-wishers of the United Empire, to see the endeavours of the Society succeed in an object of so much importance as the establishment of the culture of Hemp in our colonies.

Every man is sensible of the necessity of providing supplies of this article for our ships, our navy being the bulwark of this kingdom, and the terror of its enemies,

The Society have endeavoured to draw into one point of view the articles which serve for the purpose of cordage in every part of the world, and have not formed their opinion on theory, but on actual experiments, many of which are found detailed in the present Volume, as further noticed.

In our last Preface we expressed our wishes, that government would well consider the propriety of encouraging the culture of hemp in Canada, and its purchase from thence, on fair

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terms, with ready money, and by proper agents; the Society have proved it may be done, and shown by what means success may be ensured. We cannot too much enforce to public consideration this important object, as we do not find that any means have yet been adopted by Government to purchase what has been already grown in Canada. It is well known that the growers of hemp there have not capitals to give credit upon, nor are the cultivators merchants.

Isaac Winslow Clarke, Esq. of Montreal, has exported from thence to London, upwards of 2500lb. of hemp. The experiments of Messrs. Bich prove that its strength is even more than what is required by Government for making ropes; and the experiments of Messrs. Fowlers show, that if properly prepared, there is no doubt it will be equal, if not superior, to the best assortments of Russia hemp, for twines, &c. Messrs. Schneider and Mosher have given ample accounts of the expenses attending the cultivation of hemp in Canada. Mr. Allan's letter observes, that there is every probability that the culture of hemp for exportation from Canada will eventually have the desired effect; and the more support it receives in its infancy, the sooner this will be accomplished.

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The experiments made by Dr. Roxburgh, of Calcutta, to ascertain the comparative strength of Hemp and other vegetable fibres, the growth of the East Indies, do great credit to the genius of this excellent naturalist, to whom the public are so much indebted for many other valuable communications from India : we hope his exertions will be continued in this useful branch of knowledge.

Dr. Anderson's communication relative to the Botanic Garden of St. Vincent, confirms the information noticed in our twenty-first volume, of additions having been made to the Royal Botanical Garden there, of some valuable land, and the advantages likely to result from it.

From the public spirit shown by Mr. Walter Baine, in the British Herring Fishery, there appears great reason to suppose that very considerable improvements are making by him in this valuable branch of commerce ; the Society, anxious to open to the public this source of wealth, have not only continued their bounty, but added to the Volume some valuable information, likely to contribute to this purpose, by communicating the best processes employed by the Hollanders, in the preparation of the fish, when caught.

The Rewards conferred by the Society this session, will be found particularly detailed under that head, at page 419 ; and the Présents which have been received from public bodies, and individuals, are fully noticed at page 430. During the late recess of the Society, additional room has been made in the Library ; and whilst the Society express their thanks for the presents of books received during the last year, they look forward with hope to a farther increase in a line of knowledge so consistent with their views.

The Society desire it to be clearly understood, that, as a body, they are not responsible for any opinion or representation of the facts contained in the following pages. They have allowed the communications to pass in the language and manner of the several persons mentioned, without attempting to make embellishments in the style, to the prejudice of the subject-matter.

The present session commenced in October last, and will continue till the first Wednesday in June, 1805. The Distribution of the Rewards of the Society will take place on Tuesday, the 28th of May. The Anniversary Dinner of the Society is usually at the latter end of March,

March, or beginning of April. Previous notice will be given thereof in the public papers.

The funds of the Society are in a very flourishing state ; and although it might be supposed that the troubles of war would damp the ardour of private persons in encouraging public establishments, yet with pleasure we announce that upwards of one hundred members were added the last session to the list of the Society: it should, however, be generally understood, that the views of the Society are extensive and important, and that whatever sums arise above the common incidental expenses of the Establishment, revert, without deduction, to the public ; therefore afford proportionably a much more extensive promotion of the arts and commerce of this empire.

The number of rewards given during the last session exceed those of any preceding year, and show the extensive influence of the Society.

To every branch of Arts, Manufactures, and Commerce, by which the happiness of mankind can be promoted, the Society afford encouragement ; and they invite the communications of men of abilities on the subjects conducive to such purposes.

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The public may be assured, that any useful information, addressed to Mr. Charles Taylor, the Secretary of the Society, will be immediately laid before them, and considered. A reference to the rewards annually given by the Society, will show, that their bounties are not confined within the lists of the premiums they offer, they are ever anxious to discover and reward real genius.

An æra of 50 years has been now completed since the institution of this Society: as far as human judgment can foretell future events, there is every reason to expect that the Society established for the Encouragement of Arts, Manufactures, and Commerce, will remain great and flourishing to many succeeding ages, will reflect an honour upon the merit and judgment of its founders, will preserve its reputation unsullied, and its character highly respected throughout every part of the known world.

*John-street, Adelphi,
London, Dec. 24, 1804.*